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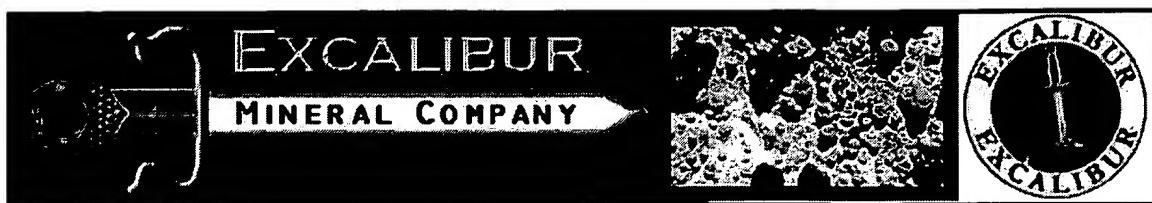
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**Talc**

Mineral Data



Pronunciation Guide



Rare Minerals, Meteorites, Equipment and Analytical Services  
World leaders in the supply of rare species  
Serving the scientific and collector communities since 1974

**General Talc Information****■ Chemical Formula:**  $Mg_3Si_4O_{10}(OH)_2$ **■ Composition:** Molecular Weight = 379.27 gm

<u>Magnesium</u>	19.23 %	Mg	31.88 %	MgO
<u>Silicon</u>	29.62 %	Si	63.37 %	SiO <sub>2</sub>
<u>Hydrogen</u>	0.53 %	H	4.75 %	H <sub>2</sub> O
<u>Oxygen</u>	50.62 %	O		

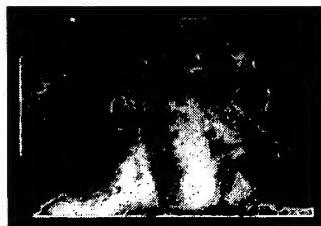
100.00 %      100.00 % = TOTAL OXIDE

**■ Empirical Formula:**  $Mg_3Si_4O_{10}(OH)_2$ **■ Environment:** Hydrothermal alteration of non-aluminous magnesian silicates.**■ IMA Status:** Valid Species (Pre-IMA) 1546**■ Locality:** Common world wide. Link to [MinDat.org](#) Location Data.**■ Name Origin:** From the Arabic.**■ Synonym:** Kerolite

Magnesium Talc

Soapstone

Steatite - massive

**Talc Image****■ Images:****Talc****Comments:** White Talc  
pseudomorphous after quartz.**Location:** Johannezeche, Bavaria,  
Germany. **Scale:** Not Given.

© Lou Perloff / Photo Atlas of Minerals

**Talc Crystallography****■ Axial Ratios:** a:b:c = 0.5778:1:2.0668**■ Cell Dimensions:** a = 5.27, b = 9.12, c = 18.85, Z = 4; beta = 100.016° V = 892.17 Den(Calc) = 2.82**■ Crystal System:** Monoclinic - Prismatic H-M Symbol (2/m) Space Group:  
C 2/c

**X Ray Diffraction:** By Intensity( $I/I_0$ ): 9.35(1), 1.53(0.55), 4.59(0.45).

### Physical Properties of Talc

<b>Cleavage:</b>	[001] Perfect
<b>Color:</b>	Pale green, White, Gray white, Yellowish white, Brownish white.
<b>Density:</b>	2.7 - 2.8, Average = 2.75
<b>Diaphaniety:</b>	Translucent
<b>Fracture:</b>	Uneven - Flat surfaces (not cleavage) fractured in an uneven pattern.
<b>Habits:</b>	Foliated - Two dimensional platy forms., Scaly - Morphology like fish scales., Massive - Uniformly indistinguishable crystals forming large masses.
<b>Hardness:</b>	1 - Talc
<b>Luminescence:</b>	Fluorescent.
<b>Luster:</b>	Vitreous - Pearly
<b>Streak:</b>	white

### Optical Properties of Talc

<b>Gladstone-Dale:</b>	$Cl_{meas} = 0.018$ (Superior) - where the $Cl = (1-KP_{Dmeas}/KC)$
	$Cl_{calc} = 0.042$ (Good) - where the $Cl = (1-KP_{Dcalc}/KC)$
	$KP_{Dcalc} = 0.2028, KP_{Dmeas} = 0.208, KC = 0.2117$
<b>Optical Data:</b>	Biaxial (-), $a = 1.538-1.55$ , $b = 1.575-1.594$ , $g = 1.575-1.6$ , $bire = 0.0370-0.0500$ , $2V(Calc) = 0-38$ , $2V(Meas) = 0-30$ . Dispersion noticeable, $r > v$ .
<b>Pleochroism (x):</b>	colorless.
<b>Pleochroism (y):</b>	pale green.
<b>Pleochroism (z):</b>	pale green.

### Calculated Properties of Talc

<b>Electron Density:</b>	$\rho_{electron} = 2.76 \text{ gm/cc}$ note: $\rho_{Talc} = 2.75 \text{ gm/cc}$ .
<b>Photoelectric:</b>	$PE_{Talc} = 1.57 \text{ barns/electron}$ $U = PE_{Talc} \times \rho_{electron} = 4.34 \text{ barns/cc.}$
<b>Radioactivity:</b>	$GR_{API} = 0$ (Gamma Ray American Petroleum Institute Units)

Talc is Not Radioactive

### Talc Classification

<b>Dana Class:</b>	71.2.1.3 (71) Phyllosilicate Sheets of Six-Membered Rings (71.2) with 2:1 Layers (71.2.1) Pyrophyllite-talc group
	71.2.1.1 Pyrophyllite $Al_2Si_4O_{10}(OH)_2$ $\bar{P}\bar{T}\bar{I}$
	71.2.1.2 Ferripyrophyllite $Fe_2Si_4O_{10}(OH)_2$ $C\bar{2}/m$ $2/m$

71.2.1.3 Talc Mg<sub>3</sub>Si<sub>4</sub>O<sub>10</sub>(OH)<sub>2</sub> C 2/c 2/m  
 71.2.1.4 Willemseite (Ni,Mg)3Si<sub>4</sub>O<sub>10</sub>(OH)<sub>2</sub> C 2/c 2/m  
 71.2.1.5 Minnesotaite (Fe,Mg)3Si<sub>4</sub>O<sub>10</sub>(OH)<sub>2</sub> C<sup>-1</sup>  
 71.2.1.6 Brinrobertsite (Na,K,Ca)<sub>x</sub>(Al,Fe,Mg)<sub>4</sub>(Si,Al)8O<sub>20</sub>(OH)<sub>4</sub>·3.54(H<sub>2</sub>O)  
 [x=0.35,n=3.54] pseudo 2/m 2/m

### ☒ Strunz Class:

### VIII/H.09-40 VIII - Silicates

VIII/H - Phyllosilicates (layered) Mica like layered silicates with [Si<sub>4</sub>O<sub>10</sub>]<sub>4</sub>- and related groups

### VIII/H.09 - Talc series

VIII/H.09-10 Pyrophyllite Al<sub>2</sub>Si<sub>4</sub>O<sub>10</sub>(OH)<sub>2</sub> P<sup>-1</sup>  
 VIII/H.09-20 Ferripyrophyllite Fe<sub>2</sub>Si<sub>4</sub>O<sub>10</sub>(OH)<sub>2</sub> C 2/m 2/m  
 VIII/H.09-30 Macaulayite (Fe,Al)24Si<sub>4</sub>O<sub>43</sub>(OH)<sub>2</sub> C? Mono  
 VIII/H.09-40 Talc Mg<sub>3</sub>Si<sub>4</sub>O<sub>10</sub>(OH)<sub>2</sub> C 2/c 2/m  
 VIII/H.09-50 Minnesotaite (Fe,Mg)3Si<sub>4</sub>O<sub>10</sub>(OH)<sub>2</sub> C<sup>-1</sup>  
 VIII/H.09-60 Willemseite (Ni,Mg)3Si<sub>4</sub>O<sub>10</sub>(OH)<sub>2</sub> C 2/c 2/m  
 VIII/H.09-65 Pimelite\* Ni<sub>3</sub>Si<sub>4</sub>O<sub>10</sub>(OH)<sub>2</sub>·4(H<sub>2</sub>O) Unk. Hex  
 VIII/H.09-70 Kegelite Pb<sub>8</sub>Al<sub>4</sub>Si<sub>8</sub>O<sub>20</sub>(SO<sub>4</sub>)<sub>2</sub>(CO<sub>3</sub>)<sub>4</sub>(OH)<sub>8</sub> A2/m,A2,Am Mono

## Other Talc Information

**☒ References:** NAME( Duda&Rej90) PHYS. PROP.(Enc. of Minerals,2nd ed.,1990) OPTIC PROP.(Heinrich65)

**☒ See Also:**

### Links to other databases for Talc :

1 - Applied Mineralogy 2 - Athena 3 - Crocuite.com  
Mineral Locations 4 - EUROmin Project 5 - Franklin Minerals(Dunn) 6 - Franklin Minerals(Palache) 7 - Glendale Community College 8 - Google Images 9 - Handbook of Mineralogy 10 - MinDAT 11 - MinMax (Deutsch) 12 - MinMax(English) 13 - Minerals in Thin Sections-University of North Carolina 14 - Minerals in Thin Sections-Humboldt State 15 - Minerals of Wisconsin 16 - Scandinavian mineral gallery 17 - The Mineral Gallery 18 - UCLA - Petrography Thin-Sections 19 - University of Manchester - Mineral Structure 20 - University of Minnesota 21 - WWW-MINCRYST 22 - YupRocks 23 - École des Mines de Paris

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[Ask-A-Mineralogist](#) from the Mineralogical Society of America  
[Mindat.org's Discussion Groups](#)  
[Original Rockhounds Discussion Group](#)  
[Rockhounds Discussion Group on Yahoo Groups](#)

**Print or Cut-and-Paste your Talc Specimen Label here :**

<b>Talc</b>
Mg <sub>3</sub> Si <sub>4</sub> O <sub>10</sub> (OH) <sub>2</sub> Dana No: 71.2.1.3 Strunz No: VIII/H.09-40
<b>Locality:</b>
<b>Notes:</b>

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